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PLASTIC FILM RECYCLING AT MULTI-UNIT BUILDINGS

**A Pilot Project of the Saint
Paul Recycling Program**

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ABOUT SAINT PAUL RECYCLING

The City of Saint Paul has been recognized as a national leader in environmental and recycling programs, as a part of its mission to make Saint Paul “The Most Livable City in America”. [1]. The Saint Paul Recycling Program, a division of Saint Paul Public Works, provides recycling collection and education to all residents in single family households and multi-unit dwellings [2]. As the capital of Minnesota, Saint Paul is the second most populous city in the State with an estimated 309,180 residents [3]. Within the city there are over 2,400 multi-unit buildings. From September of 2017 to August of 2018 the Saint Paul Recycling Program hosted a Minnesota GreenCorps Member to focus full time on developing a multi-unit recycling program. This program included outreach, education, data analysis, and the development and implementation of a multi-unit specific waste reduction pilot program.

ABOUT MINNESOTA GRENCORPS

The Minnesota GreenCorps program is a statewide AmeriCorps program coordinated by the Minnesota Pollution Control Agency. The program's goals are to preserve and protect Minnesota’s environment while also training a new generation of environmental professionals. Members are placed with host organizations around the state to assist with a variety of environmental needs. Funding is provided through a grant from ServeMinnesota and the Corporation for National and Community Service. Members serve full-time at their host sites for 11 months, from mid-September through mid-August. [4]



THE PROBLEM WITH PLASTIC FILM

Through site visits at multi-unit buildings (referring to apartment buildings consisting of 5 or more units), conversations with property owners and managers, and input from Saint Paul's contracted recycling hauler, plastic bag and film contamination in the recycling is consistently identified as one of the top recycling problem areas for multi-unit properties.

The Saint Paul Recycling Program does not currently accept plastic bags and film in the residential single sort recycling program. This material can cause problems at Material Recovery Facilities because it has the ability to clog automated sorting equipment [6]. Saint Paul's recycling hauler is very stringent regarding contamination and will not pick up recycling if plastic bags and film are present. If the contamination is not addressed in a timely manner it can lead to a back up of material at the multi-unit building and the possibility of recycling being disposed of in the trash.

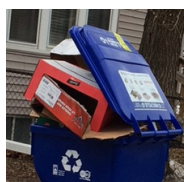
If a resident is interested in recycling plastic bags and film, their main option is to bring the material to a local drop-off/retail take-back program. Unfortunately, there is a widespread lack of awareness of how to recycle film properly via take-back programs. This affects the quality of residential single sort recycling as many residents will still include plastic bags, film and wraps in their recycling [5].

When deciding on a waste reduction program to pilot at multi-unit buildings in Saint Paul, plastic bags and film were chosen as the material to target in order to address these pervasive issues.

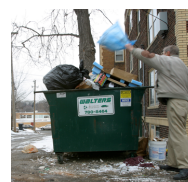
PROCESS TO PREVENT:



Plastic film contamination in recycling



Recycling build up after no collection



Recycling disposed in trash in effort to clean out carts



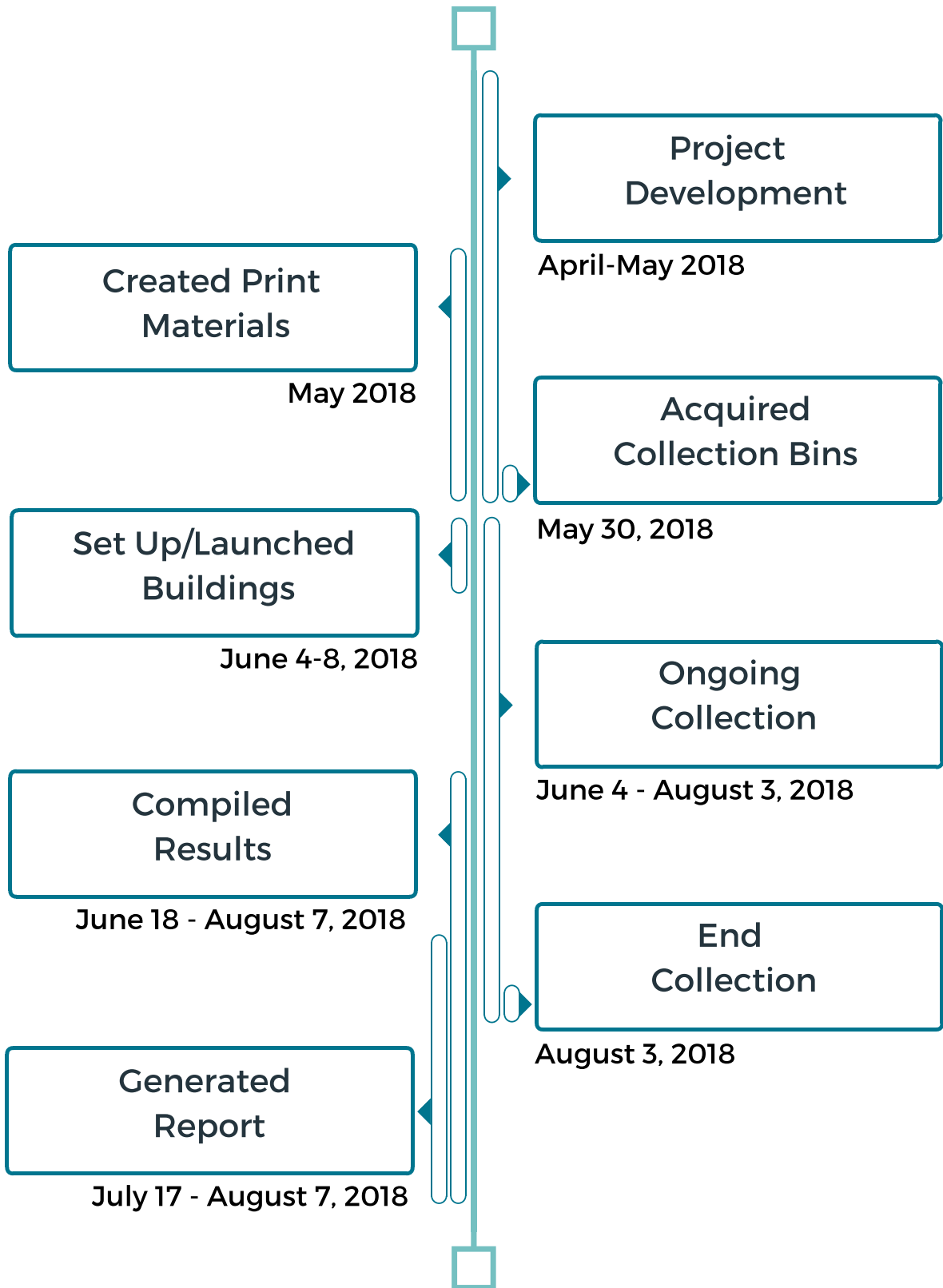
PRIMARY OBJECTIVES

- Reduce plastic bag, film, and packaging contamination in multi-unit single sort recycling carts.
- Increase education and awareness about recycling plastic bags, film, and packaging.
- Collect and properly dispose of plastic bags, film, and packaging.

SECONDARY OBJECTIVES

- Provide an additional, convenient option for multi-unit residents to recycle plastic bags, film and packaging.
- Add project to Saint Paul Recycling programming in order to expand to more buildings.

TIMELINE





PROJECT COMPONENTS

SIGNAGE

RECYCLE
clean & dry
plastic film packaging,
bags & wraps
HERE

NOT in Regular Recycling

Produce Bags	Plastic Shipping Envelopes	Bread Bags	Dry Cleaning Bags	Case Wrap
Air Pillows	Newspaper Bags	Food Storage Bags	Product Overwrap	Bubble Wrap

and Carryout Bags

Also look for any packaging with this How2Recycle label

NO candy bar wrappers, chip bags, rigid plastics, or degradable bags

Recycle if Clean & Dry
Store Drop-off
PLASTIC
BAGS / FILM / WRAP
how2recycle.info

all in Saint Paul Recycles
For a full list of accepted items visit: stpaul.gov/ApartmentRecycling

Recycle Plastic Film Packaging, Bags and Wrap in this building!

Place empty, clean and dry plastic bags and film into a specially designated recycling bin in your building's laundry room or waste area.

Accepted Items:

Produce Bags	Plastic Shipping Envelopes	Bread Bags	Dry Cleaning Bags	Case Wrap
Air Pillows	Newspaper Bags	Food Storage Bags	Product Overwrap	Bubble Wrap

As well as Shopping and Grocery bags

And any Packaging with the How2Recycle label

NO candy bar wrappers, chip bags, degradable plastics, paper or rigid plastic.

For more information, visit: stpaul.gov/ApartmentRecycling

all in Saint Paul Recycles

11x17" sign placed on and above collection bin.

NO PLASTIC BAGS IN THE CART

DO NOT BAG
Recyclables

Collecting recyclables in a bag? Empty the contents into the cart.

Place empty, clean and dry plastic bags and film into the designated Plastic Bags and Film collection bin for recycling.

For more information about plastic bag and film recycling at your apartment building, visit: stpaul.gov/ApartmentRecycling

all in Saint Paul Recycles

4x6" sign placed on lids of regular recycling carts.





PLASTIC FILM RECYCLING GUIDE

8.5x11" Tri-fold brochure distributed to every unit in the buildings.

Recycle clean, dry plastic bags & film packaging...

...Right here in your apartment building!

Collect plastic bags, film and packaging in your unit. When you are ready to recycle, take the material to a specially designated recycling bin in your building's waste area.

Look for the blue sign!



Do not place plastic bags, film or packaging in your building's recycling carts.

For more information, visit:

stpaul.gov/ApartmentRecycling

Or call: 651.266.6176

Plastic Film Recycling Guide



This service is a pilot program developed and implemented by the Saint Paul Recycling Program, a division of Saint Paul Public Works. As is the nature of pilot programming, operations may change over time.

- Plastic film recycling at your building
- Accepted items
- Additional information



Recycle these items:



Also Accepted: Bubble wrap, Cereal bags, Ice bags, Mattress bags, Furniture foam wrap, Stretch film, Pallet wrap, Salt bags, Plastic shipping envelopes, Bags from lawn products and bird seed, Six pack plastic rings, HDPE, LDPE, LLDPE films.

NOT Accepted:

- Candy wrappers**
- Chip bags**
- Saran™ wrap**
- Rigid plastics**
- Degradable plastics**
- Trash**
- Organic material**
- Paper, glass or metal**

Remember:

- Plastic must be clean and dry
- Remove stickers and labels
- Shake out crumbs & residue





PROJECT COMPONENTS

COLLECTION BINS

White corrugated plastic bins with lids.

Height: 38"

Length: 20.25"

Width: 17"

Bins donated by the Recycling Association of Minnesota.



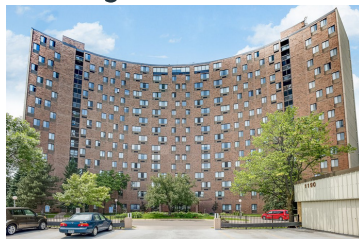
PARTICIPATING BUILDINGS

Building A



- 38 Units
- Condominiums
- No onsite Property Manager
- Onsite Maintenance Staff
- Mainly English speaking
- Indoor Waste Area
- 1 plastic film bin placed in waste area
- Enthusiastic about program

Building B



- 250 Units
- Senior Housing Hi-Rise
- Onsite Property Manager
- Onsite Maintenance Staff
- Mainly English speaking
- Indoor Waste Area
- 2 plastic film bins placed in waste area
- Enthusiastic about program

Building C



- 22 Units
- 2 Buildings, 11 units each
- No onsite Property Manager
- No onsite Maintenance Staff
- High Karen and Spanish speaking population
- Outdoor Waste Area
- 2 plastic film bins placed in laundry rooms

OPERATIONS



After buildings were set up with collection bins and print materials were distributed to residents, plastic film was picked up on an on-call basis by the Minnesota GreenCorps Member. The GreenCorps Member would pick up full bags of plastic film and transport them to the Saint Paul Recycling offices where the GreenCorps Member would weigh and sort the film.



Once weighed and sorted, the GreenCorps Member would then transport the material to Merrick, Inc. Merrick, Inc. is a non-profit that offers employment opportunities to adults with intellectual or developmental disabilities. They operate a line of plastic film and recycling programming. The film is sorted and baled by Merrick Inc., and then sold to a partnering organization, Trex®, to be recycled into composite lumber.



The GreenCorps Member and the property managers maintained contact every 1-2.5 weeks through phone, email, and in person conversation. Buildings A and B required pick-ups every 1-3 weeks, while Building C did not require a pick-up until the end of the collection period.



The GreenCorps Member monitored contamination by visually checking regular recycling bins at every plastic film pick up and photographing any visible contamination. Eureka Recycling, Saint Paul's recycling hauler, also assisted in monitoring contamination by working with the drivers who serviced the participating buildings and having them report and document any plastic film contamination they encountered.



COLLECTION

PLASTIC FILM CATEGORIES FOR SORTING



RETAIL/GROCERY
Grocery and retail shopping bags



FOOD RELATED
Produce bags, bread bags, Ziplocs, veggie bags, ice bags, cereal bags



INDUSTRIAL
Large sheets of plastic film



PRODUCT OVERWRAP



BUBBLE WRAP
Bubble wrap and air pillows



OTHER
Newspaper bags, Tyvek envelopes, dry cleaning bags, clothing bags, miscellaneous packaging



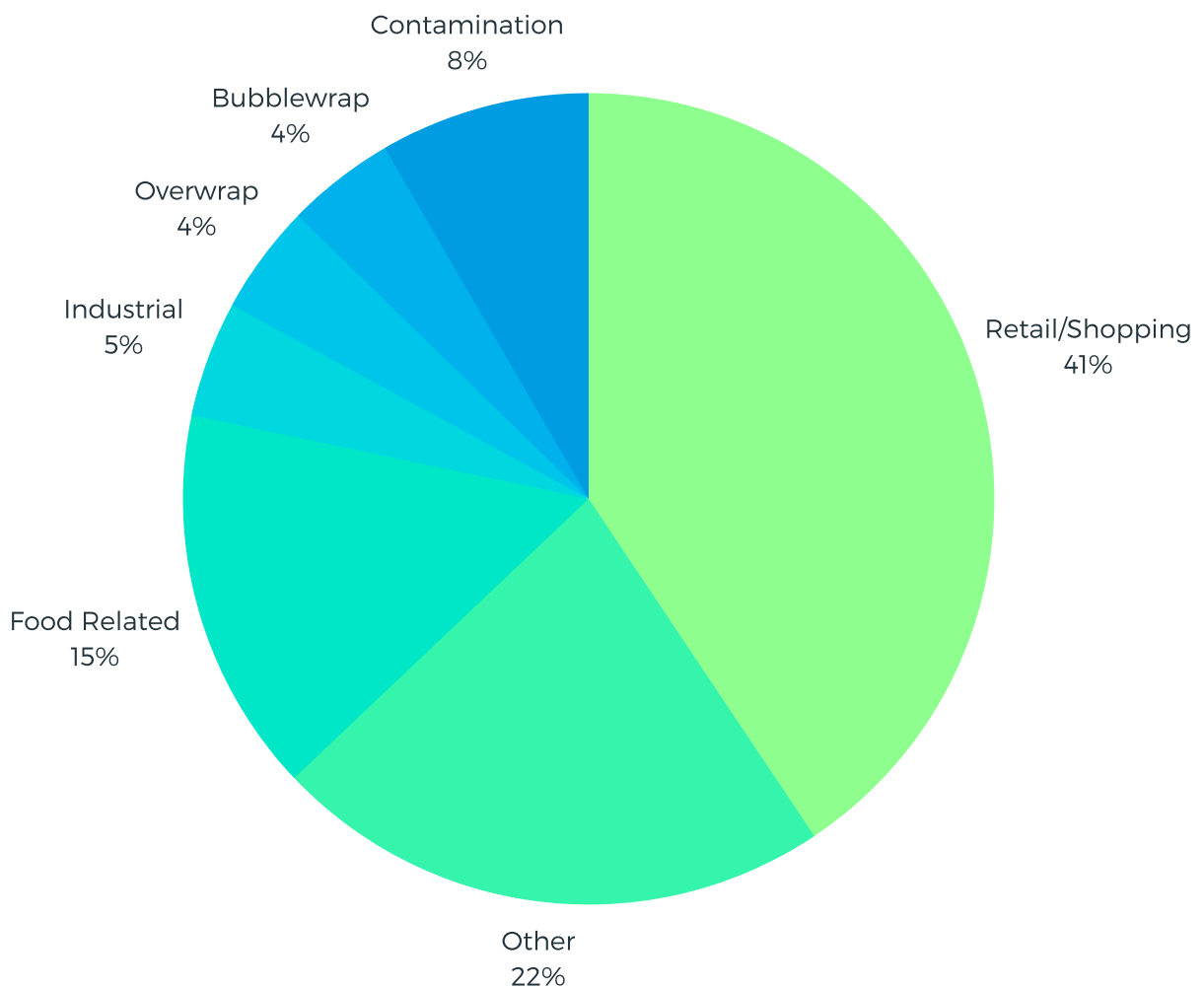
CONTAMINATION
Food/candy wrappers, paper, foam, wet bags, crumbs/food, rubber plastic, receipts, cardboard, aluminum cans, plastic folders, laundry detergent bottles, plastic clam-shells



COLLECTION

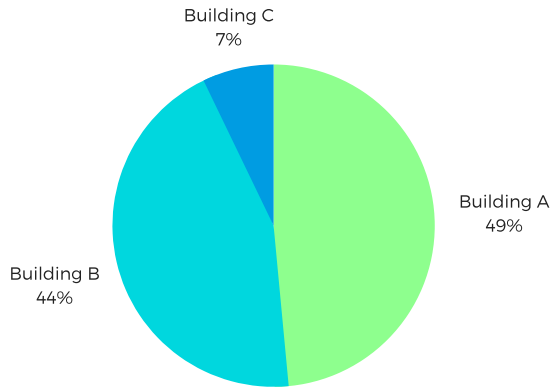
- 76.98 lbs of total material collected from June 4th - August 3rd.
- 8% overall contamination rate.
- 2,770 pieces of plastic bags, film and packaging collected (including contamination).
- 2,538 pieces of plastic bags, film and packaging recycled.

Plastic Bags, Film and Packaging Collected by Type:



COLLECTION

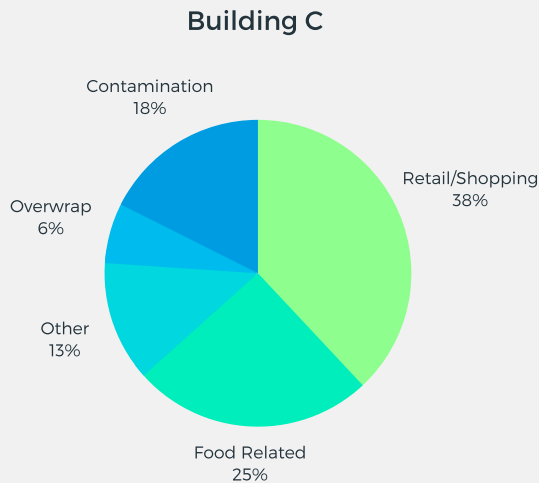
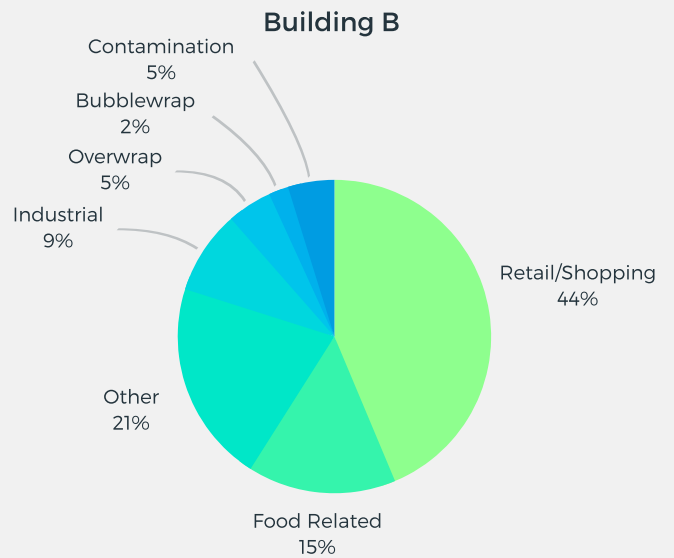
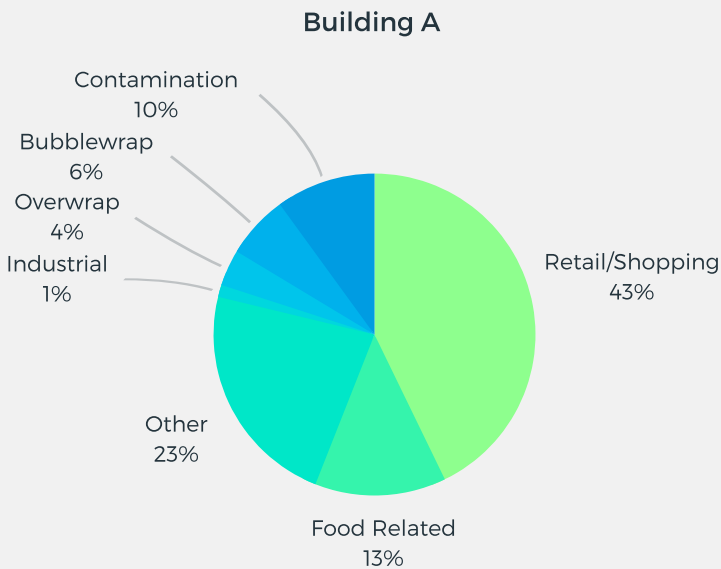
Plastic Bags, Film and Packaging Collected by Building:



Building A	37.34 lbs.	.98 lbs. per unit
Building B	34.13 lbs.	.14 lbs. per unit
Building C	5.51 lbs.	.25 lbs. per unit
total	76.98 lbs.	.46 average lbs. per unit

(2 month period)

Types of Plastic Film Collected by Building:





CONTAMINATION

BUILDING A

10% contamination rate of plastic bags, film and packaging collected.

Possible contributing factor: Bin placement (not near waste area, placed in an entry way).

Contamination of Single Sort Recycling:

Before Program: Building contact reported cleaning out plastic bags from single sort recycling carts every week on the evening before collection. Plastic film in carts found by the GreenCorps Member 1 time prior to program.

During Program: No contamination noted by Eureka Recycling, the GreenCorps Member or building staff throughout program.

BUILDING B

5% contamination rate of plastic bags, film and packaging collected.

Possible contributing factor: Wish-cycling of items that were not accepted.

Contamination of Single Sort Recycling:

Before Program: Eureka Recycling noted contamination in single sort recycling carts 1 time in the 6 months prior to program. Residents and staff complained of plastic bags in recycling anecdotally. Plastic film in carts found by the GreenCorps Member 1 time prior to program.

During Program: Eureka Recycling noted contamination in single sort recycling carts twice throughout program, with once case noting "plastic bags" and one case noting "garbage". The GreenCorps member did not find any contamination in carts throughout program.

BUILDING C

18% contamination rate of plastic bags, film and packaging collected.

Possible contributing factors: Not providing translated materials to non-English speaking residents. Bin placement (in laundry rooms - items like detergent bottles collected).

Contamination of Single Sort Recycling:

Before Program: Eureka Recycling noted contamination in single sort recycling carts every 7-14 days for the 6 months prior to program. Contamination listed as "trash". Plastic film not specified.

During Program: Eureka Recycling noted contamination in single sort recycling carts every 7-14 days throughout program. Of a total of 6 cases of contamination, 4 were noted as "trash" and 2 were noted as "plastic bags". Property experienced two successful recycling pick-ups during program.

OVERALL

Although anecdotal evidence and visual observations seemed to indicate that contamination in single-sort recycling carts was decreasing, the rates of contamination observed by Eureka Recycling did not appear to reduce.



OUTCOMES

RESPONSES RECEIVED

- **Building A:** Residents at Building A had a very positive reaction to the program. The Homeowners Association of the building, made up of residents, was very involved and communicative.
- **Building B:** Residents at Building B also received the program positively. The MN GreenCorps member received several phone calls from residents who wished to express gratitude for the program.
- **Building C:** Resident response at Building C is unknown, The program still received moderate engagement.
- **Property Managers:** The property managers at Buildings A and B were very eager to participate in the program, communicative throughout the program, and generally helpful and positive throughout. The property manager at Building C was generally communicative but not as active in assisting the program as other property managers.

BARRIERS ENCOUNTERED

- **Collection Bin Location:** Collection bins that were further away from the single sort recycling carts were more likely to contain contamination. This made buildings with an outdoor waste area difficult to host bins as they had to be placed indoors and far away from the outdoor waste area. Bins by doorways were more likely to contain contamination.
- **Language:** Building C had a high population of Karen and Spanish speaking residents. Without translated materials it was difficult to convey the program to residents and encourage participation.
- **Off-Site Property Manager:** Building C had an off-site property manager who was not able to assist in most aspects of the program. Without someone on-site to call in pick-ups and communicate with residents it was difficult to manage contamination and gauge participation.
- **Building Staff Communication:** At Building B, miscommunication between management and maintenance staff led to the improper disposal of 4 bags of plastic film. An estimated 37 lbs. of material was lost.



OUTCOMES

OBJECTIVES REACHED



"Increase education and awareness about recycling plastic bags, film, and packaging."

310 units were reached through this program, with all units receiving information about plastic bag, film, and packaging recycling.



"Collect and properly dispose of plastic bags, film, and packaging."

76.98 lbs. of plastic bags, film, and packaging (2,770 individual pieces) were collected over a two month span, with 2,538 pieces able to be recycled.



"Provide an additional, convenient option for multi-unit residents to recycle plastic bags, film and packaging."

310 total units across 4 multi-unit buildings had access to plastic bag, film, and packaging recycling within their own buildings. (Noting that at Building C, language barriers may have interfered with residents knowing that this option existed for them.)



OBJECTIVES NOT ATTAINED

"Reduce plastic bag, film, and packaging contamination in multi-unit single sort recycling carts."

Rates of contamination did not prove to significantly decrease during the program. Through the visual observations of the MN GreenCorps member and through feedback from building staff, contamination appeared to go down at Buildings A and B. Building C had its first issue-free pick up in almost one month during the first week of of the program. Beyond these highlights however, contamination rates proved to be consistent overall at all three locations.



"Add project to Saint Paul Recycling programming in order to expand to more buildings."

Due to staff capacity, budget, and the outcome that contamination was not significantly reduced, it was decided to not maintain this program through the Saint Paul Recycling program moving forward.





RECOMMENDATIONS

If any organization is interested in pursuing a similar plastic film collection program in the future, please refer to the following recommendations:

- 1) **Coordinate a pick-up service** - The most difficult aspect of this program was the time and effort that went into picking up the plastic film from participating buildings and then transporting the material to the recycler. This type of program would be a much more manageable endeavor if the transporting of plastic film was done through a contracted service or managed by the participating buildings themselves.

- 2) **Provide translated materials** - For Karen and Spanish speaking residents at Building C, a lack of information translated into their language may have been a barrier to participating in the program. It is highly recommend that any future effort include translated materials and information in order to make the program accessible to all residents.

- 3) **Co-locate collection bins with recycling carts** - Throughout this program, the closer a collection bin was to the single-sort recycling carts, the less contaminated that plastic film collection bin was.

- 4) **Start with buildings that have on-site staff** - When initially rolling out a program like this, start with buildings that have on-site staff. It is much easier to stay connected to residents, make changes and updates to the program, and control contamination if there is a property manager or maintenance staff on-site. Once the overall program has become established, and initial issues worked out, then begin expanding to buildings that do not have on-site property management.



CONCLUSION

After 2 months of collection, the three buildings (310 total units) participating in this program collected 76.98 lbs. of plastic bags, film, and packaging. Of this amount, 92% was clean, dry, and acceptable. Unfortunately, contamination rates in single-sort recycling did not appear to be significantly affected by this program. Because of this, and due to staff capacity, the program was not added to Saint Paul Recycling's programming.

At the conclusion of the program, Building C decided to end collection completely. Building B decided to keep the collection bins and attempt to find a resident volunteer to take on the program. Building A decided to continue the program, with a resident volunteer transporting the plastic film to Merrick, Inc.

Although Saint Paul Recycling did not continue to offer the program, information is available to multi-unit buildings regarding how to implement a collection program like this on their own. Additionally, inspired by this pilot, Saint Paul Recycling developed a decal for recycling carts with messaging specific to plastic bags (translated in multiple languages) that is freely available to multi-unit properties.





WILDER PARK ASSOCIATION

THE ESSEX CONDOMINIUMS

714/720 STRYKER APARTMENTS



ACKNOWLEDGEMENTS

Thank you to the above organizations for their support. This program would not have been possible without their contributions, whether through the donation of materials, operational support, providing information and educational materials, or hosting a collection bin.



WORKS CITED

[1] <https://www.stpaul.gov/departments/public-works/recycling-and-waste-reduction>

[2] <https://www.stpaul.gov/sites/default/files/Media%20Root/2017%20Annual%20Report%203.20.pdf>

[3] https://en.wikipedia.org/wiki/Saint_Paul,_Minnesota

[4] <https://www.pca.state.mn.us/waste/minnesota-greencorps>

[5] http://www.plasticsmarkets.org/jsfcode/srvyfiles/2016filmreport_final_v2_1.pdf

[6] <https://www.pca.state.mn.us/sites/default/files/p-rrr1-04.pdf>